Polychlorinated Biphenyl Residues in the Plasma and Hair of Refuse Workers

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Refuse workers may be exposed to polychlorinated biphenyl (PCB) residues from the burning of automobiles, tires, transformers and wire insulation. Paired plasma and scalp hair specimens were obtained from 37 refuse burners and 54 controls (lumberyard and waterworks workers).

PCB residues were dehydrochlorinated and assayed by gas chromatography with a Ni^{63} electron capture detector. Rough PCB quantitation was achieved by integrating the area under a five peak "fingerprint" associated with the PCB fractions, Arochlor 1254 and 1260. Unwashed hair specimens were all negative for PCBs. Detectable plasma PCB levels were found in 81% (32/37) of the refuse burners but only in 11% (6/54) of the controls. Median PCB levels for those with detectable amounts were similar in the two groups; refuse workers—2.6 ppb, controls—3.7 ppb. Maximum plasma PCB levels were 14.1 ppb in the refuse workers and 20.2 in the controls.

The higher frequency of measurable plasma PCB levels in refuse workers may reflect their increased PCB exposure from incinerated materials. Similar median plasma values for both groups reaffirm the role of blood as a transport rather than a storage tissue. As expected, scalp hair is of no utility in estimating PCB body burdens.

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